

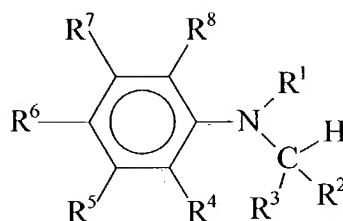
WHAT IS CLAIMED IS:

1. A dental material comprising:
 - a hardenable resin system; and
 - a first initiator system capable of hardening the hardenable resin;
- 5 wherein the hardenable resin system and the first initiator system are selected such that when combined the resultant composition has an initial set phase time of less than about 180 seconds at room temperature, and an extended flexible phase working time of greater than about 85 seconds at room temperature.
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2. The dental material of claim 1 further comprising a filler system.
3. The dental material of claim 2 further comprising a second initiator system.
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4. The dental material of claim 1 wherein the first initiator system comprises at least one reducing agent and at least one oxidizing agent.
5. The dental material of claim 4 wherein the oxidizing agent is a peroxide compound.
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6. The dental material of claim 5 wherein the peroxide compound is benzoyl peroxide.
7. The dental material of claim 4 wherein the reducing agent is selected from
- 25 the group of a tertiary aromatic amine, a mercaptan, and combinations thereof.
8. The dental material of claim 7 wherein the first initiator system comprises at least two tertiary aromatic amines.
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9. The dental material of claim 7 wherein the first initiator system comprises at least one tertiary aromatic amine and at least one mercaptan.

10. The dental material of claim 7 wherein the first initiator system comprises at least one polymerizable tertiary aromatic amine.
- 5 11. The dental material of claim 1 wherein the hardenable resin comprises at least one ethylenically unsaturated compound.
12. The dental material of claim 11 wherein the first initiator system comprises at least one tertiary aromatic amine.
- 10 13. The dental material of claim 1 wherein the dental material is useful as a restorative.
14. The dental material of claim 13 wherein the restorative is selected from the group of an inlay, onlay, veneer, crown, and bridge.
- 15 15. The dental material of claim 1 wherein the restorative is useful as a provisional restorative.
- 20 16. The dental material of claim 15 wherein the provisional restorative is a temporary crown or a temporary bridge.
17. The dental material of claim 1 which is in at least two parts.
- 25 18. The dental material of claim 17 wherein at least one part includes at least one reducing agent and at least one part includes at least one oxidizing agent, which together form the first initiator system.
19. The dental material of claim 18 wherein at least one part includes at least one initiator of a second initiator system.
- 30 20. The dental material of claim 19 wherein the initiator is a photoinitiator.

21. The dental material of claim 20 wherein the photoinitiator is camphorquinone.

22. The dental material of claim 1 wherein the first initiator system comprises a tertiary aromatic amine reducing agent of the formula:



wherein each R group is independently H or an organic group that does not adversely effect the initiation of hardening of the dental material.

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23. A dental material comprising a hardenable resin system and a first initiator system capable of hardening the hardenable resin, wherein the first initiator system comprises at least one polymerizable tertiary aromatic amine.

15 24. The dental material of claim 23 wherein the hardenable resin system and the first initiator system are selected such that when combined the resultant composition has an initial set phase time of less than about 180 seconds at room temperature, and an extended flexible phase working time of greater than about 85 seconds at room temperature.

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25. A dental material comprising a hardenable resin system and a first initiator system capable of hardening the hardenable resin, wherein the first initiator system comprises at least two peroxide oxidizing agents.

25 26. The dental material of claim 25 wherein the hardenable resin system and the first initiator system are selected such that when combined the resultant composition has an initial set phase time of less than about 180 seconds at room temperature, and an extended flexible phase working time of greater than about 85 seconds at room temperature.

27. A dental material comprising a hardenable resin system and a first initiator system capable of hardening the hardenable resin, wherein the first initiator system comprises at least two reducing agents, at least one of which is a mercaptan.
28. A dental material suitable for use as a provisional restorative, the dental material comprising a hardenable resin system and a first initiator system capable of hardening the hardenable resin, wherein the first initiator system comprises at least two tertiary aromatic amine reducing agents.
29. A kit for preparation of a dental restorative, the kit comprising:
a first container comprising at least one reducing agent;
a second container comprising at least one oxidizing agent; and
at least a portion of a hardenable resin system in at least one of the containers;
wherein the hardenable resin system, reducing agent, and oxidizing agent are selected such that when combined the resultant composition has an initial set phase time of less than about 180 seconds at room temperature, and an extended flexible phase working time of greater than about 85 seconds at room temperature.
30. The kit of claim 29 further comprising at least one filler in at least one of the containers.
31. The kit of claim 30 further comprising at least one initiator of a second initiator system in at least one of the containers.
32. The kit of claim 31 wherein the initiator is a photoinitiator.
33. The kit of claim 29 wherein the oxidizing agent is a peroxide compound.

34. The kit of claim 27 wherein the reducing agent is selected from the group of a tertiary aromatic amine, a mercaptan, and combinations thereof.

5 35. The kit of claim 34 comprising at least two tertiary aromatic amine reducing agents.

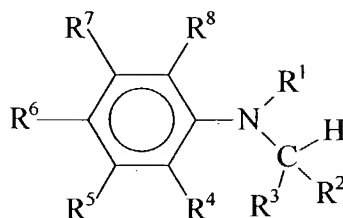
36. The kit of claim 34 comprising at least one tertiary aromatic amine reducing agent and at least one mercaptan reducing agent.

10 37. The kit of claim 34 comprising at least one polymerizable tertiary aromatic amine reducing agent.

38. The kit of claim 34 wherein the hardenable resin comprises at least one ethylenically unsaturated compound.

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39. The kit of claim 29 wherein the reducing agent comprises a tertiary aromatic amine of the formula:



20 wherein each R group is independently H or an organic group that does not adversely effect the initiation of hardening of the dental material.

40. A kit for preparation of a dental restorative, the kit comprising:

a first container comprising at least one oxidizing agent;

25 a second container comprising at least one polymerizable tertiary aromatic amine reducing agent; and

a hardenable resin system in at least one of the containers.

41. A kit for preparation of a dental restorative, the kit comprising:

a first container comprising at least two peroxide oxidizing agents;
a second container comprising at least one reducing agent; and
a hardenable resin system in at least one of the containers.

- 5 42. A kit for preparation of a dental restorative, the kit comprising:
 a first container comprising at least one oxidizing agent;
 a second container comprising at least two reducing agents, at least one
 of which is a mercaptan; and
 a hardenable resin system in at least one of the containers.

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43. A method for preparing a dental restorative, the method comprising:
 making an impression of at least one tooth;
 filling the impression with a hardenable composition comprising a
 hardenable resin system and a first initiator system; wherein the hardenable
15 resin system and the first initiator system are selected such that when
 combined the resultant composition has an initial set phase time of less than
 about 180 seconds at room temperature, and an extended flexible phase
 working time of greater than about 85 seconds at room temperature.
 placing the impression over at least one tooth for a sufficient time to
20 partially harden the hardenable composition;
 removing the impression and partially hardened composition and
 removing excess hardened material to form a dental restorative; and
 allowing the dental restorative to further harden.

- 25 44. The method of claim 43 wherein the first initiator system comprises at least
 one peroxide compound.

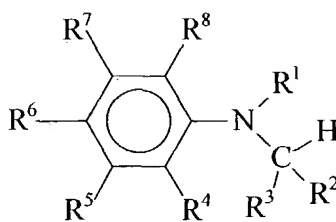
45. The method of claim 43 wherein the dental material further comprises a
 second initiator system.

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46. The method of claim 43 wherein the first initiator system comprises at least one reducing agent selected from the group of a tertiary aromatic amine, a mercaptan, and combinations thereof.

5 47. The method of claim 46 wherein the tertiary aromatic amine is a polymerizable tertiary aromatic amine.

48. The method of claim 46 wherein the reducing agent comprises a tertiary aromatic amine of the formula:



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wherein each R group is independently H or an organic group that does not adversely effect the initiation of hardening of the dental material.